

object for which it was established—the study of the natural history and antiquities of the neighbourhood. The volume before us contains a selection of some of the principal papers read at the Club meetings during these ten years, and, as a whole, they reflect credit on the diligence, intelligence, and knowledge of the authors. Both the papers on general and those on local subjects contain much valuable material, quite deserving of publication, and the latter especially will be useful to those who want information on the natural history and antiquities of Staffordshire. One of the most interesting general papers is by Dr. J. Barnard Davis, "On the Interments of Primitive Man," which is illustrated by some beautifully executed woodcuts. Of the papers on local subjects, we may mention "Notes on the Fossil Trees in a Marl Pit at Hanley," by John Ward, F.G.S.; "The Geology of Mow Cop, Congleton Edge, and the surrounding district," by J. D. Sainter, F.G.S.; "On the absence of Waterfalls in the Scenery of North Staffordshire," by J. E. Davis; and "On the Organic Remains of the Coal Measures of North Staffordshire," by John Ward, F.G.S. Appended is a considerable list of Macro-Lepidoptera taken and observed in North Staffordshire by members of the Club, by T. W. Daltry, F.L.S. The illustrated paper on Croxden Abbey is a valuable one of its kind.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

The India Museum

IN your notice of the various transfers of the India Museum (vol. xii. p. 192), you do not allude to the somewhat important fact that from 1869 up to the recent opening of the new museum the whole of the Natural History Collections have been kept in closed boxes in the cellars of the India Office.* This has been a grievous wrong to working naturalists, who have constantly required access to typical specimens to solve various points of inquiry.

Again and again the attention of the authorities of the India Office was called to this state of affairs without effect, and naturalists cannot give too much credit to Lord Salisbury and the present Administration for putting an end to the scandal that existed so long.

Unfortunately, however, as I prophesied, it has been found on opening the boxes that some of them have been attacked by moth, and that valuable specimens have perished.

July 9

P. L. SCLATER

Irish Cave Exploration

DURING the last few weeks Dr. Leith Adams, F.R.S., and myself have been exploring an ossiferous cave at Shandon, near here, under a grant from the Royal Irish Academy. Bones of mammoth, reindeer, bear, wolf, horse, and hare, were found in the *débris* of a quarry here in 1859, and are now in the Royal Museum, Dublin. We have worked through a considerable quantity of limestone breccia and stalagmite, in which and in a thin underlying deposit of cave-earth we have found numerous bones of the above-mentioned animals, indicating at least two individuals of mammoth, eighteen of reindeer, and five of horse, for which latter this is as yet the sole recorded locality in Ireland. The bones of bear show extreme age and signs of disease, and we have found the cast antler of a reindeer. Some of the bones have been gnawed, probably by wolves, and many have been broken by the falling-in of the roof of the cave. Though we have broken into a large chamber, we are as yet unable to form a clear conception of the original form of the cavern. A full account of the cave previous to the present exploration was given by Prof. Harkness in the *Geological Magazine* for June, 1870.

G. S. BOULGER

Dungarvan, Co. Waterford, July 11

* See NATURE, vol. vii. p. 437.

Sea-power

WILL you allow me to ask your readers one or two questions upon a subject which may ultimately belong rather to an engineering than to a purely scientific journal, but which at present has not, I believe, passed into the hands of practical men? I wish to know:

1. Where—if anywhere—use is made of the movements of the sea as motive powers?

2. Where I can find the latest and fullest information upon this subject?

I have an impression that a paper on the subject appeared in one of the volumes of NATURE, but I cannot find it. The latest paper on which I can now put my hand is M. Cazin's lecture on "Les Forces Motrices," in the *Revue des Cours Scientifiques* of Feb. 19, 1870. The lecturer mentions the failure of the *moulins de marée*, and gives a description, with diagram, of M. Tommasi's proposed *flux moteur*.

It has long appeared to me that the immense importance of the question as to the possibility of utilising sea-power has not been sufficiently recognised. The practical solution of this question would not only give to England an inexhaustible motive power, but would also, to a considerable extent, solve at once such problems as are connected with the rapid consumption of our coal, the pollution of our rivers in manufacturing districts, the unhealthy and immoral massing of our working classes in dirty and smoky towns and cities, &c. Moreover, the space covered by the sea-side factories would in many instances be merely the almost waste border-land between sea and field.

Giessen, June 30

A. R.

Sea-Lions

IT will be no doubt interesting to your readers to learn that a pair of Sea-Lions have just been added to the collection of animals in the Jardin d'Acclimatation, Paris. They are said to have been brought from the North Pacific, and are marked *Otaria stelleri*, but I think from their small size and long narrow heads that the species is more probably *Otaria ursina*, the Northern Sea Bear, whose principal habitat is the Pribylov group. They are quite young, and the female is larger than the male.

The administrative committee of the Garden has caused a large tank to be built for their reception similar to that in our Zoological Gardens, only rather larger. They seem in excellent health, and it will be interesting to see whether they breed in captivity.

They have no special attendant, so far as I could see, as the Sea-Lions at our Gardens have, and are therefore only fed at stated times. On the day of my visit the keeper was late, and the female became hungry. She gave vent to her feelings by a curious cry, a prolonged "Ah—a—a—ah," repeated at short intervals—something like the bleating of an angry sheep.

It is to be regretted that these animals were not secured for our Gardens, where the best method of managing them is so thoroughly understood, and where consequently the experiment of breeding might have been tried with a better chance of success than elsewhere.

J. W. CLARK

Museum of Zoology and Comparative
Anatomy, Cambridge, July 11

Hereditary Affection of a Cat for a Dog

I HAVE reared a fine mastiff. He is now three-and-a-half years old. When quite a puppy he and a kitten evinced a strong liking for each other. The kitten, when able to leave her mother, fixed her residence in the dog's kennel, and never seemed happy when away from her large friend. She ate her breakfast out of the dog's bowl, and slept in his kennel with his paws around her. She used to catch mice and young rats, and carry them to him, and seemed quite pleased when he accepted friendship's offering. One morning I observed the cat preparing a bed with straw in the corner of the kennel—an ordinary wooden one, 4 feet by 2½ feet. As she was going to have kittens, I thought she intended making the kennel her nursery, and "Cato" (the dog) her head nurse. Such proved to be the case. She brought forth five kittens, and there they lay for some time. The mother frequently went away for hours, leaving the dog to look after her family. I many times stooped down to examine them, and "Cato" stood by my side quite proud of his charge. The poor

cat came to an untimely end eighteen months ago, but the only surviving kitten of the five named above is as fond of the dog as her mother was. She brings mice, young rats, and rabbits, and lays them down before "Cato," and looks beseechingly till he takes them. She constantly plays with him and gets on her hind legs to look fondly into his face, while he puts his paws round her as he used to do to her mother.

She must have *inherited* this affection from her mother, as she was too young to have imitated her mother's actions at the time of her death.

H. G.

Clent, July 13

Scarcity of Birds

I SHOULD much like to know whether blackbirds and thrushes are scarce in other localities this year; because they have most unaccountably vanished from this neighbourhood, with the exception of a very few stragglers. Our cherries and strawberries are untouched. I have not observed a single blackbird or thrush in our garden or pleasure-grounds since the fruit ripened, though every other year we captured several in the cherry-nets, and shot many others.

R. M. BARRINGTON

Fassaroe Bray, co. Wicklow, July 12

OUR ASTRONOMICAL COLUMN

VARIABLE STARS.—Of the three stars to which Col. Tennant draws attention as being probably variable ("Monthly Notices R.A.S.," June 1875), B.A.C. 740 appears more especially deserving of regular observation. The B.A.C. has adopted the magnitude assigned by Groombridge, 6; other estimates are:—Hevelius, 6; Fedorenko (Lalande, 1789 November), 8; Piazzì, 8, by seven observations; Schwerd, $8\frac{1}{2}$; Taylor, in 1834 or 1835, in vol. iii. of "Madras Observations," 7 (he calls the star 21 Cephei); Carrington, $8\frac{1}{2}$; the Radcliffe Catalogues, 7·5; and Durchmusterung, 8·4. With regard to the observation of Hevelius, which has been assumed to refer to this star, it may be remarked that the position given in his Catalogue for 1660, where it is No. 46 in Cepheus, does not well agree with the place of the Redhill Catalogue for B.A.C. 740, the difference of position amounting to 16'; nevertheless it is not easy to identify the star observed by Hevelius with any other in the modern catalogues. In the cases of the stars B.A.C. 4166 and 4193, also noticed by Col. Tennant, the estimates of magnitude from the epoch of Schwerd's observations to the present time appear pretty accordant. [In comparing the magnitudes assigned in different catalogues to the naked-eye stars it is necessary to bear in mind that in Argelander's Uranometria, and in Heis and Behrmann, 6·5, 5·4, &c., apply to stars which are judged to be somewhat brighter than an average sixth or fifth magnitude, and are not to be understood decimally, as is the case in the "Durchmusterung."]

THE DOUBLE-STAR Σ 1785.—The proper motion of this star is investigated in Argelander's researches, Bonn Observations, vol. 7. He remarks: "Die Begleiter geht mit," and of this there can be no doubt, since in the interval between Struve's first measures and the last published by the Baron Dembowski, the amount of proper motion, according to Argelander's values, would be $-20''.9$ in R.A. and $-2''.4$ in Decl. But the relative fixity of the components, which might have been surmised from Argelander's comparison of his differences of R.A. and Decl. for 1867.34, with those deduced from Struve's angle and distance in 1830, is clearly refuted by the recent measures. Thus we have—

Struve	...	1830·12	Position	164°·43	Distance	3 ⁿ ·487
Dembowski	...	1870·81	,,	199°·60	,,	2 ⁿ ·431

Perhaps it is not yet practicable to decide whether this relative change is due to slight difference of proper motion or to the binary character of the star, but it is evidently

one that should be regularly measured. The position for the beginning of the present year is R.A. 13h. 43m. 24s., and N.P.D. 62° 23' 6".

THE TOTAL SOLAR ECLIPSE, 1927, June 29.—We believe the Rev. S. J. Johnson, of Upton Helions, Devon, was the first who pointed out the probable totality of this eclipse for a short interval in this country. It is one of those eclipses in which the moon's augmented semi-diameter exceeds that of the sun by a small quantity, even where the sun is on the meridian. The following are approximate elements:—

Conjunction in R. A. 1927, June 28, at 18h. 27m. 14s. G. M. T.

	R.A.	°	'	"	
Moon's hourly motion in R.A.	97	6	12	
Sun's " "		37	27	
Moon's declination ... "		2	36	
Sun's " "	24	4	35	N.
Moon's hourly motion in Decl.	23	17	17	N.
Sun's " "		1	18	N.
Moon's horizontal parallax ... "		0	7	S.
Sun's " "		57	55	
Moon's true semidiameter ... "		0	9	
Sun's " "		15	47	
Sun's " "		15	44	

The sidereal time at Greenwich noon on June 29 is 6h. 26m. 17s., and the equation of time 3m. 3s. subtractive from mean time. The middle of general eclipse at 18h. 23m. 17s.

Hence the following points on the central line :—

Long.	3	⁰ 21	W.	Lat.	54	⁰ 11	N.	Sun's zenith distance	⁰ 78	5		
"	"	0	45	W.	"	55	40	"	"	76	3	
"	"	1	30	E.	"	57	3	"	"	74	5	
"	"	3	32	E.	"	58	15	N.	"	"	72	8

In $1^{\circ} 37' \text{ W.}$ and $55^{\circ} 12' \text{ N.}$ totality begins according to the above elements, June 28 at 17h. 19m. 31s. local mean time, and continues only nine seconds. It will be seen that the track of the central line in its passage over England is from Windermere, a little north of Morpeth, to the Northumberland Coast; it appears to just³ escape the Isle of Anglesey, but our data are not quite definitive.

MINOR PLANETS.—M. Stéphan has calculated elements of No. 146, discovered by M. Borrelly, from the Marseilles observations of June 9, 18, and 29, which give as a first approximation to the period of revolution, 1627 days; the planet has been named *Lucina*. Euphrosyne is in opposition about this time, with 57° South Declination; this body makes one of the widest excursions of any in the group, and may at times be found in Ursa Major. Daphne is the brightest of the small planets now near opposition.

SCIENCE IN GERMANY

(From a German Correspondent.)

IN continuation of the last report (p. 152) we make the following further communication on Götte's "History of Development." As we have already mentioned, Götte deduces the structure of the embryo from the difference in size and position of the parts resulting from the division of the ovum. He supports this theory by the following observations. In the case of all ova, first of all a difference shows itself in the vertical axis, the parts round the upper pole being smaller and generating quicker than those round the under pole. The ratio of displacement is therefore also much greater in the upper hemisphere; and as this one expands concentrically it overgrows downwards the more bulky lower hemisphere, or causes it to bulge inwards, so that from the ovum which divides into many cell-like pieces, results a beaker-shaped